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Date: May 13, 2008 /Kimberly Webb/
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Appellant(s):	William Gardner	Examiner:	Vijay B. Chawan
Serial No:	10/669,475	Art Unit:	2626
Filing Date:	September 23, 2003		

Title: DATA COMMUNICATION THROUGH ACOUSTIC CHANNELS AND COMPRESSION

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellant submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [QUALP821USA].

I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Qualcomm Incorporated, the assignee of the present application.

II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1-35 stand rejected by the Examiner. The rejection of claims 1-35 is being appealed.

IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

The Examiner has entered the amendments submitted after the Final Office Action for purposes of Appeal. (*See* Communication from Examiner dated February 20, 2008).

V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))

Some of the claims are directed to a transmitter, while others are directed to a receiver. The claims directed to a transmitter include independent claims 1, 11, 21, 27, and 34. Those directed to a receiver include independent claims are 1, 11, 21, 27, and 34. Independent claim 31 comprises both transmitter and receiver characteristics.

In one embodiment of the claimed subject matter (independent claim 1), Appellants claim an apparatus (100) for use in transmitting digital data through an audio channel, comprising a data coder (120) configured to convert the digital data into one or more types of sound parameters (paragraph 0025, lines 3-4) and a sound synthesizer (130) coupled to the data coder and configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data (paragraph 0025, lines 4-5). In other words, digital data is converted into sound parameters and then synthesized into acoustic sound waves.

In another embodiment (independent claim 6), Appellants claim an apparatus (200) for use in receiving digital data through an audio channel, the apparatus comprising a sound analyzer

(210) configured to receive acoustic sound waves and to extract one or more types of sound parameters from the received acoustic sound waves (paragraph 0025, lines 6-7) and a data decoder (230) coupled to the sound analyzer and configured to convert the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8). In other words, claim 6 recites an apparatus for performing the reverse process of claim 1.

In yet another embodiment (independent claim 11), Appellants claim a method for use in transmitting digital data through an audio channel, the method comprising converting digital data into one or more types of sound parameters (paragraph 0025, lines 3-4) and converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data (paragraph 0025, lines 4-5).

In still another embodiment (independent claim 16), Appellants claim a method for use in receiving digital data through an audio channel, the method comprising extracting one or more types of sound parameters from received acoustic sound waves (paragraph 0025, lines 6-7) and converting the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8).

In another embodiment (independent claim 21, a means plus function claim), Appellants claim an apparatus (100) for use in transmitting digital data through an audio channel, the apparatus comprising means (120) for converting digital data to be transmitted into one or more types of sound parameters (paragraph 0025, lines 3-4) and means (130) for converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data (paragraph 0025, lines 4-5).

In another embodiment (independent claim 24, a means plus function claim), Appellants claim an apparatus (100) for use in receiving digital data, the apparatus comprising means (210) for extracting one or more types of sound parameters from received acoustic sound waves (paragraph 0025, lines 6-7) and means (230) for converting the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8).

In yet another embodiment (independent claim 27), Appellants claim a machine readable medium (paragraph 0069, lines 2-4) used for transmitting digital data through an audio channel, the machine readable medium comprising codes (paragraph 0069, lines 1-4) for converting digital data to be transmitted into one or more types of sound parameters (paragraph 0025, lines 3-4) and codes (paragraph 0069, lines 1-4) for converting the one or more types of sound parameters into

acoustic sound waves to acoustically transfer the digital data (paragraph 0025, lines 4-5).

In yet another embodiment (independent claim 29), Appellants claim a machine readable medium (paragraph 0036, lines 2-4) used for receiving digital data through an audio channel, the machine readable medium comprising codes (paragraph 0069, lines 1-4) for extracting one or more types of sound parameters from received compressed sound (paragraph 0025, lines 6-7) and codes (paragraph 0069, lines 1-4) for converting the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8).

In a another embodiment (independent claim 31, a means plus function claim), Appellants claim an apparatus (100) for use in transmitting and receiving digital data through an audio channel, the apparatus comprising means (120) for converting digital data to be transmitted into one or more types of sound parameters (paragraph 0025, lines 3-4), means (130) for generating acoustic sound waves based on the one or more types of sound parameters (paragraph 0025, lines 4-5), means (210) for extracting one or more types of sound parameters from received acoustic sound waves (paragraph 0025, lines 6-7), and means (230) for converting the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8).

In still another embodiment (independent claim 34), Appellants claim a processor (paragraph 0069, line 4) for use in transmitting digital data through an audio channel, the processor comprising a processing circuit (paragraph 0027, lines 6-7) configured to convert digital data to be transmitted into one or more types of sound parameters (paragraph 0025, lines 3-4) and converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data (paragraph 0025, lines 7-8).

In a final embodiment (independent claim 35), Appellants claim a processor (paragraph 0069, line 4) for use in receiving digital data through an audio channel, the processor comprising a processing circuit (paragraph 0027, lines 6-7) configured to extract one or more types of sound parameters from received acoustic sound waves (paragraph 0025, lines 6-7) and convert the extracted one or more types of sound parameters into the digital data (paragraph 0025, lines 7-8).

VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A. Whether claim 1 is objected to because of the following informalities: In the phrase "convert the one or more…" the second "the" is extraneous.

B. Whether claims 1-35 are being anticipated by Harada (US 6,038,529).

Claims 1-35 stand rejected under 35 U.S.C. §102(e) as being anticipated by Harada (US 6,038,529).

VII. Argument (37 C.F.R. §41.37(c)(1)(vii))

A. Objection of Claim 1

Claim 1 is objected to because the phrase "convert the one or more…" the second "the" is extraneous. Appellants have amended claim 1 to correct this deficiency and this amendment has been entered by the Examiner for purposes of Appeal in an Advisory Action dated February 20, 2008. Accordingly, the objection should be reversed.

B. Rejection of Claims 1-35 Under 35 U.S.C. §102(e) – Claims 1-35

Claims 1-35 stand rejected under 35 U.S.C. §102(e) as being anticipated by Harada (US 6,038,529). Some of the claims are directed to a transmitter, while others are directed to a receiver. The claims directed to a transmitter include independent claims 1, 11, 21, 27, and 34. Those directed to a receiver include independent claims are 1, 11, 21, 27, and 34. Independent claim 31 comprises both transmitter and receiver characteristics. The transmitter and receiver claims are argued separately.

a. Harada fails to teach a transmitter comprising a *"sound synthesizer…configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data"*– Claims 1, 11, 21, 27, 31, and 34

With regard to claim 1, it was alleged that Harada teaches a transmitter comprising "a data coder configured to convert the digital data into one or more types of sound

parameters" and a "sound synthesizer...configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data". Similar features are found in claims 11, 21, 27, 31, and 34. It was alleged that Harada teaches these claim features in Figures 3 and 4 and in column 4, line 51 through column 5, line 52. A close investigation of this reference does not teach or suggest the two claimed elements noted above.

Harada, in Figure 3, teaches a signal transmission unit 32 and a signal reception unit 33. The transmission unit 32 receives an audio signal from inputting element 11 and encodes the audio signal in accordance with ITU-T Recommendations G.728, which is a standard for speech encoding. The encoded data is then provided to transmission discriminator 35, which receives the encoded audio data and determines whether sound is present or not using demultiplexer 36. If sound is present, the encoded audio data is selected by data selector 15 and transmitted. If sound is not present, then "blank data" is selected by data selector 15 and transmitted. (*See Harada, column 10, lines 22-55*)

Signal reception unit 33 receives encoded data, i.e., data encoded using the ITU-T Recommendations G.728 standard, from "inputting element" 21 and then provides the data to data converter 37. Data converter 37 comprises elements to select between encoded data received through inputting element 21 or encoded data generated by data generator 24. The chosen signal is then provided to data decoder 39, where sound selector 42 selects either an audio signal of artificial noise generated by noise generator 41 or an audio signal outputted from decoder 26, depending on whether a non-reception/reception flag is set or not. (*See Harada, column 10, line 56 – column 11, line 23*)

From the description of Figure 3 provided above, it is clear that Harada fails to teach or suggest a ***transmitter*** comprising "a data coder configured to convert digital data into one or more types of sound parameters". Harada may teach a data coder (i.e., encoder 34), however Harada's encoder does not convert digital data into sound parameters. Harada's coder 34 converts speech into encoded digital data in accordance with ITU-T Recommendations G.728. Further, Harada's encoder 34 is found within a ***receiver***, not a transmitter as claimed by Appellants.

b. Harada fails to teach a transmitter comprising a *"sound synthesizer…configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data"* – Claims 1, 11, 21, 27, 31, and 34

It is also clear that Harada fails to teach a *transmitter* comprising a "sound synthesizer…configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data". Harada simply teaches a signal reception unit 33 that receives encoded data, i.e., speech data encoded using ITU-T Recommendations G.728, decodes the digital data, and provides it (or artificial noise) as an audio signal output. There is no teaching of any digital data being acoustically transmitted. Harada simply receives and decodes a digital signal and converts it to it's original form, i.e., acoustic speech. The acoustic speech does not represent digital data.

Regarding Figure 4 of Harada, this figure simply teaches the signal transmission unit 32 and signal reception unit 33 used in an ATM configuration. There is no further detail of signal transmission unit 32 or signal reception unit 33 in Figure 4, nor does the discussion of Figure 4 (column 12, line 46- column 13, line 6) provide any further detail of signal transmission unit 32 or signal reception unit 33. Claims 1, 11, 21, 27, and 34, therefore, cannot be anticipated by Figure 4, because it also fails to teach or suggest Appellants' claimed subject matter.

Column 4, line 51 through column 5, line 52, as cited in the Final Office Action, is a general teaching of the Harada communication system. It describes an "encoding transmission method and apparatus" that transmits data when a "sound-present" period is detected and transmits "blank data" in sound-absent periods. (*Harada, column 4, lines 51-62*) Harada also teaches a "reception decoding method and apparatus" that receives and processes encoded data if a "sound-present" period is detected and generates "blank data" is a "sound-absent" period is detected. (*Harada, column 5, lines 18-28*) There is no detail in the cited passage that specifically teaches how Harada's invention is implemented, and, therefore, there is nothing in the cited material that teaches or suggests Appellants' claimed subject matter. For instance, there is no teaching whatsoever of a transmitter comprising "a data coder configured to convert the digital data into one or more types of sound parameters" or a "sound synthesizer…configured to convert the one or

more types of sound parameters into acoustic sound waves to acoustically transfer the digital data".

For the reasons mentioned above, the rejection to independent claims 1, 11, 21, 27, and 34 should be reversed. In addition, the rejection to claims 2-5, 12-15, 22, 23, and 28 should be reversed as being dependent on allowable claims.

c. Harada fails to teach a *receiver* comprising *"a sound analyzer configured to receive acoustic sound waves and to extract one or more types of sound parameters from the received acoustic sound waves"*- Claims 6, 16, 24, 29, 31, and 35

With regard to independent claim 6, it was alleged that Harada teaches a *receiver* comprising "a sound analyzer configured to receive acoustic sound waves and to extract one or more types of sound parameters from the received acoustic sound waves" and "a data decoder coupled to the sound analyzer and configured to convert the extracted one or more types of sound parameters into…digital data". Similar features are found in independent claims 16, 24, 29, 31,and 35. It was alleged that Harada teaches these claim features in Figures 3 and 4 and in column 4, line 51 through column 5, line 52. A close investigation of this reference does not teach or suggest the two claimed elements noted above.

Harada fails to teach or suggest a *receiver* having "a sound analyzer configured to receive acoustic sound waves and to extract one or more types of sound parameters from the received acoustic sound waves". Although this feature may be argued to be taught by Harada, i.e., sound detector 12 and encoder 34, Appellants assert that these two functional elements are found in signal *transmission* unit 32, not in signal *reception* unit 33.

d. Harada fails to teach a receiver comprising *"a data decoder coupled to the sound analyzer and configured to convert the extracted one or more types of sound parameters into…digital data"*

Appellants do not believe that Harada teaches a receiver comprising "a data decoder coupled to the sound analyzer and configured to convert the extracted one or more types of sound parameters into…digital data". Once again, if one were to assume, *arguendo*, that this feature is taught by Harada, i.e., decoding unit 39 and/or decoder 26, Appellants assert that these functional elements are not coupled to the "sound analyzer" and, further, that decoding

unit 39/decoder 26 is not configured to convert sound parameters into digital data. Decoding Unit 39/decoding unit 26, as taught by Harada, is used to select either an audio signal generated by decoded data or the audio signal of artificial noise generated by noise generator 41 and present the audio signal to a user. Harada, therefore, teaches a receiver that converts digital data into an audio signal as opposed to Appellants' claimed subject matter, which recites "a data decoder…configured to convert the extracted…sound parameters into…digital data".

Based on the foregoing, Appellants respectfully request that the rejection to claims 6, 16, 24, 29, 31, and 35 be reversed. In addition, the rejection to claims 7-10, 17-20, 25, 26, 29, and 35 should be reversed as being dependent on allowable claims.

C. Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-35 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP821USA].

Respectfully submitted,
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VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1. An apparatus for use in transmitting digital data through an audio channel, the apparatus comprising:

a data coder configured to convert the digital data into one or more types of sound parameters; and

a sound synthesizer coupled to the data coder and configured to convert the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data.

2. The apparatus of claim 1, further comprising:

a storage medium configured to store one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the data coder is configured to convert the digital data into the one or more types of sound parameters in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

3. The apparatus of claim 2, wherein the storage medium comprises a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

4. The apparatus of claim 1, wherein a sound parameter represents one value or a range of values representative of user authentication information.

5. The apparatus of claim 1, wherein the one or more types of sound parameters comprises a at least one speech parameter representative of artificial speech.

6. An apparatus for use in receiving digital data through an audio channel, the apparatus comprising:

a sound analyzer configured to receive acoustic sound waves and to extract one or more types of sound parameters from the received acoustic sound waves; and

a data decoder coupled to the sound analyzer and configured to convert the extracted one or more types of sound parameters into the digital data.

7. The apparatus of claim 6, further comprising:

a storage medium configured to store one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the data decoder is configured to convert the extracted one or more types of sound parameters into the digital data in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

8. The apparatus of claim 7, wherein the storage medium comprises a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

9. The apparatus of claim 6, wherein a sound parameter represents one value or a range of values representative of user authentication information.

10. The apparatus of claim 6, wherein the extracted one or more types of sound parameters comprise a at least one speech parameter representative of artificial speech.

11. A method for use in transmitting digital data through an audio channel, the method comprising:

converting digital data to be transmitted into one or more types of sound parameters; and

converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data.

12. The method of claim 11, further comprising:

storing one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein converting the digital data to be transmitted comprises converting the digital data into the one or more types of sound parameters in accordance with the one or more sets of

relationships between the bit patterns and the one or more types of sound parameters.

13. The method of claim 12, wherein storing the one or more sets of relationships comprises storing a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

14. The method of claim 11, wherein a sound parameter represents one value or a range of values representative of user authentication information.

15. The method of claim 11, wherein the one or more types of sound parameters comprises a at least one speech parameter representative of artificial speech.

16. A method for use in receiving digital data through an audio channel, the method comprising:

extracting one or more types of sound parameters from received acoustic sound waves; and

converting the extracted one or more types of sound parameters into the digital data.

17. The method of claim 16, further comprising:

storing one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein converting the extracted one or more types of sound parameters comprises converting the extracted one or more types of sound parameters into the digital data in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

18. The method of claim 17, wherein storing the one or more sets of relationships comprises storing a look up table that predefines the one or more sets of relationships.

19. The method of claim 16, wherein a sound parameter represents one value or a range of values representative of user authentication information.

20. The method of claim 16, wherein the extracted one or more types of sound parameters comprise at least one speech parameter representative of artificial speech.

21. An apparatus for use in transmitting digital data through an audio channel, the apparatus comprising:

means for converting digital data to be transmitted into one or more types of sound parameters; and

means for converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data.

22. The apparatus of claim 21, further comprising:

means for storing one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the means for converting converts the digital data into the one or more types of sound parameters in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

23. The apparatus of claim 22, wherein the means for storing stores a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

24. An apparatus for use in receiving digital data through an, the apparatus comprising:

means for extracting one or more types of sound parameters from received acoustic sound waves; and

means for converting the extracted one or more types of sound parameters into the digital data.

25. The apparatus of claim 24, further comprising:

means for storing one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the means for converting converts the extracted one or more types of sound parameters into the digital data in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

26. The apparatus of claim 25, wherein the means for storing stores a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

27. A machine readable medium used for transmitting digital data through an audio, the machine readable medium comprising:

codes for converting digital data to be transmitted into one or more types of sound parameters; and

codes for converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data..

28. The medium of claim 27, further comprising:

one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the codes for converting converts the digital data into the one or more types of sound parameters in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

29. A machine readable medium used for receiving digital data through an audio channel, the machine readable medium comprising:

codes for extracting one or more types of sound parameters from received compressed sound; and

codes for converting the extracted one or more types of sound parameters into the digital data.

30. The medium of claim 29, further comprising:

one or more sets of relationships between bit patterns and the one or more types of sound

parameters; and

wherein the codes for converting converts the extracted one or more types of sound parameters into the digital data in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

31. An apparatus for use in transmitting and receiving digital data through an audio channel, the apparatus comprising:

means for converting digital data to be transmitted into one or more types of sound parameters;

means for generating acoustic sound waves based on the one or more types of sound parameters;

means for extracting one or more types of sound parameters from received acoustic sound waves; and

means for converting the extracted one or more types of sound parameters into the digital data.

32. The apparatus of claim 31, further comprising:

means for storing one or more sets of relationships between bit patterns and the one or more types of sound parameters; and

wherein the means for converting converts the digital data into the one or more types of sound parameters in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters, and wherein the means for converting converts the extracted one or more types of sound parameters into the digital data in accordance with the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

33. The apparatus of claim 32, wherein the means for storing stores a look up table that predefines the one or more sets of relationships between the bit patterns and the one or more types of sound parameters.

34. A processor for use in transmitting digital data through an audio channel, the processor comprising:

a processing circuit configured to:

convert digital data to be transmitted into one or more types of sound parameters; and

converting the one or more types of sound parameters into acoustic sound waves to acoustically transfer the digital data.

35. A processor for use in receiving digital data through an audio channel, the processor comprising:

a processing circuit configured to:

extract one or more types of sound parameters from received acoustic sound waves; and

convert the extracted one or more types of sound parameters into the digital data.

IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

None.

X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

None.